

CLAIMS

1. A metal resin composite having numerous particles (1) of thermoplastic resin joined together, and a metal (4) supported in a three-dimensional matrix on a group of joined particles (3).
2. A metal resin composite as defined in claim 1, wherein said thermoplastic resin is at least one material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene (PE), polypropylene (PP), ABS resin, polyamide (PA), polysulfone (PSU), AS resin, polystyrene (PS), vinylidene chloride resin (PVDC), vinylidene fluoride resin, PFA resin, polyphenylene ether (PFE), methyl pentene resin and methacrylic resin.
3. A method of manufacturing the metal resin composite defined in claim 1, the metal resin composite manufacturing method comprising:
 - causing the metal (4) to be supported on surfaces of said particles (1); and
 - pressure-welding and joining together the numerous particles (1) supporting said metal (4).
4. A metal resin composite manufacturing method as defined in claim 3, wherein the surfaces of said particles (1) are treated with an electroless metal plating to form a metal coating (5) thereon, thereby causing the metal (4) to be supported on surfaces of said particles (1).
5. A metal resin composite manufacturing method as defined in claim 3, wherein the surfaces of said particles (1) are treated with an electroless plating in a solution having a metallic compound dissolved and fine grains (6) other than metal distributed therein, to form a metal coating (5) containing said fine grains (6) other than metal, thereby causing the metal (4) to be supported on surfaces of said particles (1).

6. A method of manufacturing the metal resin composite defined in claim 1, the metal resin composite manufacturing method comprising:
 - treating the surfaces of said particles (1) with an electroless metal plating to form a metal coating (5) thereon, thereby causing the metal (4) to be supported on surfaces of said particles (1);
 - treating the surfaces of said metal coating (5) with an electrolytic plating in a solution having a metallic compound dissolved and fine grains (6) other than metal distributed therein, to form an electrolytic plating film (7) of metal containing said fine grains other than metal; and
 - pressure welding and joining together the numerous particles (1) having said metal coating (5) and said electrolytic plating film (7).
7. A metal resin composite manufacturing method as defined in any one of claims 3 to 6, wherein said particles (1) are 0.1 μ m to 1,000 μ m in diameter.
8. A metal resin composite manufacturing method as defined in any one of claims 4 to 6, wherein said metal coating (5) is a film selected from the group consisting of Ni film, Ni alloy film, Ni compound film, Cu film, Cu alloy film, Cu compound film, Au film, Pt film, Pt alloy film, Pd film, Rh film and Ru film.
9. A metal resin composite manufacturing method as defined in any one of claims 4 to 6, wherein said metal coating (5) is a film selected from the group consisting of Ni-P, Ni-B, Ni-Cu-P, Ni-Co-P and Ni-Cu-B.
10. A metal resin composite manufacturing method as defined in claim 5 or 6, wherein said fine grains (6) other than metal are at least one material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene (PE), polypropylene (PP), ABS resin, polyamide (PA), polysulfone (PSU), AS resin, polystyrene (PS), vinylidene chloride resin (PVDC), vinylidene fluoride resin, PFA resin, polyphenylene

ether (PFE), methyl pentene resin, methacrylic resin, carbon (C), catalyst support grains and thermosetting resin.